

ABSTRACT

In a Raman amplification method for pumping signal light with two or more pumping lights that have different wavelengths, the wavelengths and powers of the two or more pumping lights are combined, a part or all of the combined pumping lights are used for bidirectional pumping, and distribution of power of pumping light to the wavelengths is changed while the total power in the bidirectional pumping is not changed or is hardly change. A part of the combined pumping lights are used for the forward pumping whereas all the pumping lights used in the combinations are used for the backward pumping. Among the combined pumping lights, the pumping lights on the short wavelength side are used for the forward pumping whereas all the pumping lights used in the combinations are used for the backward pumping. ~~In any combination, the power of the backward pumping light is larger than that of the forward pumping light. The LD used is iGM (trademark of an LD applied for trademark registration by the present applicant of this application).~~